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a brown line, in male merged in a single, light yellow, swollen marking. The small yellow spot on the pteropleuræ is very faint in the female, wholly absent in the male; scutellum almost wholly yellow in both; yellow bands of second and third segments hardly widened laterally; grayish pollinose lateral lunate markings of fourth segment plain in female, only the ends apparent in the male; hind femora of male colored like the others, brownish ring of tibiæ very faint. Legs of female entirely ochraceous, bases of tibiæ yellow, hind tarsi brownish, otherwise the specimens agree with Williston's descriptions of the two sexes.

These two specimens I believe to belong to the same species, and are doubtless *tridens* Lw., notwithstanding the above differences. The second and third abdominal segments are of nearly equal length in both.

CONTRIBUTIONS TO THE DIPTEROLOGY OF NORTH AMERICA.

II.—TABANIDÆ, CONOPIDÆ, TACHINIDÆ, Etc.

BY C. H. TYLER TOWNSEND.

This paper is a continuation of the work begun in the first part, which was on the Syrphidæ (Trans. Am. Ent. Soc. p. 33, 1895). The present and second part embraces the three families above mentioned, and completes the author's notes and descriptions so far made on the Townsend collection, which, as before stated, now forms a part of the University of Kansas collection of North American Diptera. Therefore all of the types herein described are to be found in that collection, with the exception of a very few recently acquired, and which are duly noted.

STRATIOMYIDÆ.

1. *Pachygaster pulcher* Lw.

Las Cruces, N. Mex. A female taken on foliage, May 5, proves to be this species. Unlike the two female specimens from Montana, mentioned by Williston in "Can. Ent." 1885, p. 128, it has the femora blackish, except at base and tip. The front and third coxæ are also black, except at tips. The short pubescence of mesoscutum

is brassy golden in color. There is some very indistinct white pubescence on pleuræ. The length is 2 mm. (abdomen is flexed under apically); length of wing 2.5 mm.

TABANIDÆ.

2. *Chrysops callidus* Osten Sacken.

Dixie Landing, Va., June 1 to July 6. Four females; ends of **A**-shaped marking on second segment prolonged laterally along the hind margin, in two specimens strongly and in the other two weakly; segments of venter toward tip brown, margined with yellowish. The cloud of fifth vein coalesces hardly, or not at all, with the cross-band.

3. *Chrysops costatus* Fab.

Kingston, Jamaica; recorded by F. Walker from Jamaica (List Diptera in British Museum, pt. v, 1854). Best description is given by Wiedemann (Auss. Zw., i, 198). One female September 11, from Dr. W. H. Strachan; and one female November 18, captured on Museum window.

What is usually supposed to be the first ring or section, of the third joint of the antennæ in *Chrysops* is, in this species, at least in the above two specimens, annulated or segmented with unusual distinctness, making the third antennal joint appear as if composed of eight annuli. The frontal callosity is of about the same rusty yellowish color of the face, but with the posterior edge brown. In both specimens also, the outer branch of the two blackish abdominal markings (of tergum) extends to (not on) the sixth segment, instead of only to the fifth as Wiedemann describes. The inner branch extends to (not on) the fourth segment. Thus the outer arm or branch of the markings extends the width of two segments farther posteriorly than the inner branch. The venter of abdomen has a lateral longitudinal blackish brown vitta, beginning about middle of second segment, continuing to posterior border of third, and more faintly on fourth and fifth segments.

The two basal cells, and also the anal, are hyaline, except a slight infuscation of former at proximal end, and of all at distal end. The discal cell and last posterior contain each a hyaline spot, that of the latter reaching the margin. First two joints of antennæ long and very nearly equal.

Dr. Williston has identified this species from Santo Domingo (Tr. Kan. Acad. Sci. x, 134). Macquart has recorded it from Cuba, and Fabricius and Wiedmann from South America. I am able to verify Walker's determination of it from Jamaica.

Mr. C. W. Johnson, in litt., determines it from Port Antonio, Jamaica.

4. **Chrysops montanus** O. S.

Pompanoosuc, Vt. (C. M. Weed). One female; first two antennal joints reddish yellow; third yellowish brown, the last four annuli black. Thorax brownish, with two broad, median, grayish stripes, and lateral more yellowish ones. The median pair of longitudinal blackish markings on abdominal segments three and four coalesce anteriorly, but not so broadly as those of second segment; none of the spots of one segment coalesce with those of any other segment. Front femora blackish at base; the middle knees, unlike the others, not blackish. The cloud on fifth vein does not join the cross-band of wings; otherwise agrees well with Osten Sacken's description.

5. **Chrysops niger** Macq.

Dixie Landing, Va., May 25 to June 22. Three females. In all three of the specimens the first basal cell is lighter than rest of clouded portion, in fact it is largely subhyaline. In all other respects they agree closely with Osten Sacken's description. Fourth posterior cell hyaline next the intercalary vein in all.

6. **Chrysops vittatus** Wied.

Riley County, Kansas (F. Marlatt), August; two females. Length 7.5 mm. Frontal callosity yellowish, like the face; no "vestiges of yellow spots" on sixth segment. In one specimen the venter has a median blackish spot on third, fourth and fifth segments, in addition to the lateral stripes; otherwise they agree well with Osten Sacken's description.

7. **Silvius quadrivittatus** Say.

Smithville, So. Dakota (J. M. Aldrich); four females. These do not differ from southern New Mexico specimens, except that they seem to be a little more yellowish pollinose, and average somewhat larger. A single female from Riley County, Kansas (F. Marlatt, June), is also larger.

8. **Theriopteles astutus** Osten Sacken (?)

Orono, Me. (Harvey); one female. Differs from description as

follows: Palpi hardly thickened at base, pale brownish yellow; third antennal joint considerably excised, with a very distinct angle, segments of annulate portion not distinct. Thorax with five narrow gray vittæ; otherwise agrees well, but the eyes are nearly bare, and very indistinctly, if at all, pubescent.

9. **Therioplectes comastes** Will.

Custer County, Colorado (T. D. A. Cockerell). Three females I refer to this species on account of the reddish first, second and base of the third antennal joints, and the absence of any cloud on furcation of third vein. *T. phænops* O. S. differs only in the black antennæ.

Placer and Santa Clara Counties, California (E. M. Ehrhorn). Two females. Length 13 mm., I am inclined to refer to this species. They differ as follows from Williston's description: Face is white with white pile, that on upper border near eyes narrowly blackish; palpi pale yellowish, or rather whitish, with sparse black hairs and white pile; basal joints of antennæ pale reddish; front is but slightly convergent anteriorly; first to fourth abdominal segments with an oblique area of whitish hair on sides, all segments thinly bordered behind with whitish hair, and abdomen with whitish hair on sides.

10. **Therioplectes zonalis** Kirby.

Orono, Me. (Harvey); two females. Length 16.5 and 18 mm. The smaller female has yellowish hair on cheeks, and the yellow borders of abdominal segments very narrow; but the light reddish antealar tubercle, brownish palpi, and narrow front indicate *zonalis*. The hair of abdomen, also, except on hind borders of segments, is black. The other specimen is more normal, but the yellowish borders of the abdominal segments bear black hairs among the yellow, becoming almost exclusively black on the last two or three segments.

11. **Atylotus baal** n. sp.

Length 14 mm.—Front moderately broad, black; frontal callosity square, shining, with a prolongation, above which is widened on terminal half or more. Face blackish, cheeks with whitish hair. Antennæ pale yellowish, with a brownish tinge, annulate portion of third joint shining black; third antennal joint very slightly excised above; palpi whitish, with black hairs; pleuræ and pectus blackish, with whitish hair. Thorax brown, with short yellowish hairs, scutellum concolorous. Abdomen pale yellowish brown, with a yellowish, more or less interrupted median streak, some short whitish hair on middle of first segment and on outer posterior margins of other segments (perhaps also along median vitta, but if so, rubbed off), rest of abdomen with short black hairs. Venter more yel-

lowish. Legs yellowish, the terminal half of tarsi, and front and middle trochanters blackish, the middle and hind femora tinged with brownish. Wings clear, costal cells very dilute yellowish.

Dixie Landing, Va., June 22. One female.

12. **Tabanus alene** n. sp.

Length 10 mm.—Rather nearly allied to *T. parvulus* Willist. from Santo Domingo. Front of moderate width, quite parallel. Antennæ reddish yellow, the annulate portion and angle of third joint black, with a slight tinge of black on other joints distally; frontal callosity nearly square, pointed above, convex below. Rest of front yellowish gray pollinose, with a brownish shade on vertex, and another between latter and callosity; subcallus not denuded, yellowish gray pollinose; third antennal joint not wide at base, very narrow, but with a distinct angle. Face with a white bloom and white pile; palpi pale yellowish tawny; pleuræ and sternum with whitish pile. Dorsum of thorax light brown, with five yellowish gray vittæ, the sides and posterior border lighter. Scutellum of same brown, with a lighter border. Abdomen pale yellowish brown, the last three segments darker; all the segments with a narrow grayish hind margin, which is dilated into a small median triangle on second to fourth. All the segments with a vestige of a whitish pollinose spot on each side, each separate and not touching borders of segment. Legs pale brownish yellowish, tarsi darker. Wings hyaline; the stigma, furcation of third vein, small cross-vein and origin of third, and cross-veins at distal end of second basal and discal cells, narrowly clouded; costal cells quite clear, except at stigma.

Bath, Jamaica (Mrs. E. M. Swainson); one female. Type in coll. Townsend.

13. **Tabanus angustifrons** n. sp.

Length 9-11 mm.—Pale yellowish brown; no limpid spots on wings, which show no marked cloudiness, but are only yellowish on costal portion; first two antennal joints reddish yellow, the third wholly black. Abdomen yellowish brown, with hind margins of segments pale yellowish gray, enlarging into a triangle in the middle and forming an approach to a median line; front is very narrow and parallel, eyes bare. Basal enlarged section of third antennal joint distinctly angular above; palpi tawny grayish. Legs brownish, bases of tibiae and tarsi lighter.

Jamaica. Two female specimens. One from Cinchona (5000 feet), Jamaica, August, 1893, W. Fawcett. A small species.

This is not *T. lucidulus* Wlk., as it has no limpid spots on wings. I doubt that it is *T. rufiventris* Mcq., as identified by Walker, which was from Cuba. At any rate Macquart's description is too meagre to be certain. It is none of the Santo Domingo or other new species described by Williston (in "Trans. Kans. Acad. Sci." x). Macquart described *rufiventris* from a male specimen, which makes the determination of that species at the best very uncertain, and doubtless Walker's determination of it from Jamaica is wide of the mark. *T. rufiventris* should, therefore, be dropped from the Jamaican list of Diptera until competently identified.

14. *Tabanus atratus* F.

Constantine, Mich., August 26; one male. Washington, D. C., May to September, one female and two males. One of the males has the first posterior cell closed, and another has it nearly closed. None have yellowish hind margins to wings.

15. *Tabanus exul* O. S.

Dixie Landing, Va., four females, July 6-13; Washington, D. C., two females and one male, June 30 to August 4. These specimens all agree well in coloring with Osten Sacken's description, in Part II of Prodrôme, of the original *T. abdominalis* with the first posterior cell closed. The male and three of the females have the first posterior cell well open, but moderately coarctate; two other females have it narrowly open and strongly coarctate; while the remaining female has it very narrowly open, almost closed, in the left wing; but like the preceding in the right wing. These specimens, agreeing so closely otherwise and showing such variation in the first posterior cell, seem to indicate that the latter character is of little importance even in separating varieties. There seems to be no difference among the female specimens in the width of the front, which is moderately wide. Length 19-22 mm.

It is interesting to note that the females of this species are very numerous in July on the small steam tug-boats that run on the Potomac from Washington up to Dixie Landing. They alight on all parts of the boat while in mid-river.

16. *Tabanus exul* var. or n. sp.

Riley County, Kansas (F. Marlatt), June. One female, 18 mm. long, differs in having a narrower front, the first posterior cell wide open, the third antennal joint black except extreme base, form not so stout and thorax appearing narrower, abdomen and legs brick-brown, and median triangles very faint, with grayish instead of yellowish hairs among the black hairs on abdomen. The hind tibiae are less noticeably sub-ciliate, the yellowish gray pile of underside of head and thorax less plain, frontal callosity oval and pointed above, where it sends out the spindle-shaped prolongation. This seems to be a distinct species.

17. *Tabanus punctifer* O. Sack.

Fort Selden, Dona Ana County, N. Mex.; one female, June 13. La Vega de San José, Valencia County, New Mexico; two females, August 4. Chaves, N. Mex.; one male, August 6. One female (August 4) is without the clouded spot at base of second posterior cell.

LEPTIDÆ.

18. **Arthropeas** n. sp. ?

Hill City, So. Dakota (Titus Ulke); one female specimen. Length 15 mm.

It differs from Loew's description of the same sex of *A. americana* in its larger size, in having the front entirely black, and in the wings being fulvescent without black design, except subfuscous clouds along the veins.

In the left wing of this specimen there is a well formed extra cross-vein behind the discal cell, exactly opposite to the small cross-vein and of almost the same length. It cuts off the inner corner of the fourth posterior cell where it joins the second basal, thus making the fourth posterior cell five-sided and forming a small triangular sixth posterior cell immediately at the extremity of the second basal.

CONOPIDÆ.

19. **Conops brachyrhynchus** Mcq.

Las Cruces, N. Mex., June 18-25; two males and one female. Length $7\frac{2}{3}$ -9 mm. These agree very well with Williston's description of *obscuripennis*, which is a synonym (acc. to Willist.). In addition to the golden yellow markings of the thorax mentioned by Williston, there is an indistinct prescutellar band of that color which, however, is obsolete in one male specimen. The whole of fifth and sixth segments is brassy yellow dusted, and sometimes even the fourth appears wholly so in certain lights. The yellow on tip of second and beginning of third segments is more or less silvery white pollinose.

20. **Conops fronto** Willist.

Las Cruces, N. Mex., June 8 and 25; one male and one female. Length 8.5-10 mm.; silvery lustre distinctly defined on sides of face; disc of first, third, fourth and fifth abdominal segments more or less black; the black of fourth, and of fifth especially, being an anterior border; otherwise agrees perfectly with Williston's description.

21. **Conops gracilis** Will.

Las Cruces, N. Mex., June 15-28; three females and five females. Length 9-11 mm. Two of the females and four of the males have the front pure yellow, with hardly a trace of the brown in the middle. The vertex is yellow in most of the specimens; facial grooves are brownish in middle at the furcation in one male and one female. The males have none, or more or less, blackish on first, fourth and

fifth abdominal segments; the females have it pronounced on these segments, and also on third segment in two specimens. In all other respects these specimens agree closely with Williston's description.

22. **Conops xanthopareus** Will.

Riley County, Kansas (F. Marlatt), August and September; two males. Length 10–11 mm. Agrees well with Williston's description; costal cells dilute yellowish. The subhyaline in discal cell appears rather to form, with that of first basal, a single rather clear stripe.

23. **Physo cephalo affinis** Will.

Constantine, Mich., September 6; one female. Length nearly 13 mm. Vertex pale reddish. The median Λ -shaped line of front more blackish; facial grooves smoky brownish in middle of each; humeral pollinose spots golden-yellow; coxæ silvery. First posterior cell with a rather small median hyaline spot on inner edge; four costal cells yellowish hyaline.

There is but little difference between this species and *castanoptera* besides the hyaline outer portion of discal cell and the hardly less hyaline outer portion of submarginal.

24. **Physo cephalo castanoptera** Lw., Neue Beiträge, i, 33.

Constantine, Mich., August 31; one male. This is a valid species, distinct from *sagittaria* Say. It will be distinguished from the latter by the yellowish vertical callosity; the red lateral and hind margins of thoracic dorsum; the red pleuræ, scutellum, prescutellar marking, and upper border of metanotum; and by the costal cells being distinctly clear or slightly yellowish. The red prescutellar marking is a parallelogram joining the red border of the thorax. Coxæ brown, silvery pollinose outwardly; legs red, tarsi brownish on terminal joints, basal half of tibiæ more yellowish. Second abdominal segment red, except a blackish patch on disc; first segment reddish, brownish on disc; third segment red anteriorly. Metanotum black, except the red upper border.

Las Cruces, N. Mex., June 4 and 26; one male and one female. These differ from the Michigan specimen in having abdominal segments 4–6 more golden pollinose, and the vertical callosity is slightly tinged with reddish.

25. **Physo cephalo ochreiceps** Big.: Will., Biol. C.-Am., Dipt. iii, 83–4.

Las Cruces, N. Mex., June 28; one female. Differs from Williston's description of *P. texana* as follows: Length 10.5 mm.; third

antennal joint a little longer than first, and about one-half as long as second; disc of metanotum black, anterior margin red. Three rather broad, confluent, black stripes on dorsum of thorax, the lateral ones abbreviated before and behind, and the middle one still more abbreviated behind; front and hind metatarsi tinged with black on inside edge. If this species and *texana* are synonymous, the former is doubtless the typical form. It should be noted that this species shows, though somewhat less noticeably, the triangular smooth space on hind margin of eyes, which is so noticeable in *Conops fronto* Will. The legs are hardly as thickened as usual in *Physo cephalo*.

26. ***Physo cephalo tibialis*** Say.

Constantine, Mich., August 31; one male. Dixie Landing, Va., August 7 and 19; two males. The Michigan specimen has hind tarsi red on basal joints.

27. ***Zodion fulvifrons*** Say.

Las Cruces, N. Mex., June 4 to September 27; seven males and one female. Also a male from Colorado (Gillette). Length 5.5–7.5 mm. All the males have the abdomen reddish yellow and silvery pollinose, the reddish interrupted stripes more or less distinct. The female has them more distinct, and darker.

Ottawa, Canada (Harrington), June 16; one male. Length 5 mm. Agrees very well with Williston's description.

28. ***Zodion splendens*** Jaenn.

Zacatecas, Mex., August 12; one female. Length 8 mm. It agrees quite well with Jaennicke's description, somewhat better with Williston's description of *Z. leucostoma*, but I believe both are the same species. The oblique pollinose markings of second segment unite somewhat indistinctly into a band. The anterior border of fifth segment is shining polished reddish; the sixth segment is only pollinose on disc, leaving the edges polished brown, the pollinose portion being transversely wrinkled. Extremity of abdomen polished dark brown, enlarged. Wings light yellowish at base; only last tarsal joint (not last two) is blackish; arista not black.

Las Cruces, N. Mex., June 21 and August 18; two, male and female, specimens. The male has the pairs of spots on fourth and fifth segments better defined and more rounded.

29. ***Oncomyia baroni*** Will.

Hanover, N. H. (C. M. Weed); one female. Agrees with description. Length 5 mm. This species seems to differ from *O. loraria* principally in being decidedly larger.

30. **Oncomyia loraria** Lw.

Takoma, D. C., September 20; one female. Agrees closely with Loew's description. The cheeks, particularly, have a silvery lustre, also the outer surface of tibiae. Length slightly over 3.5 mm. The tarsi are all blackish, but bases of tibiae are all slightly testaceous; the second joint of proboscis is slightly longer than the first; and the second joint of antennæ is no longer than the third. In this latter character it approaches *O. baroni*.

31. **Myopa pictipennis** Willist.

California (Ehrhorn). One specimen.

32. **Stylogaster neglecta** Will.

Riley County, Kansas (F. Marlatt), July; one female. Proboscis not yellowish at base; second abdominal segment yellowish above; third, fourth and fifth, more brownish, white pilose anteriorly; ovipositor yellow at base.

CESTRIDÆ.

33. **Cuterebra americana** Fab.

San Francisco Mt., Arizona. One male taken on plateau a few (about ten) miles to the north of the mountain, July 5. The abdomen has a decided purplish blue reflection; the scutellum is subopaque black. Thorax moderately shining; the golden yellowish pile on pleuræ contains, in its upper edge anteriorly, a rounded section of black pile, and a less well-defined patch of black pile touches its lower edge; just anterior to the last is a polished black glabrous area; still anterior to which is a third and smaller tuft of black pile. The venter is entirely black, but shows indications of the efflorescence in having an opaque surface containing the round, shining, purplish spots. Length 19.5 mm.

34. **Cuterebra fontinella** Clark.

Fort Collins, Colorado (Gillette); one specimen, 22 mm. long. See "Insect Life," v, pp. 319-320, for note on this specimen.

35. **Gastrophilus equi** Fab.

Cinchona, 5000 feet, Jamaica (W. Harris); two females, August (see Notes from the Museum, No. 73, Institute of Jamaica, Jan. 26, 1894).

TACHINIDÆ s. lat.

36. **Trichopoda arcuata** Big.

This species, which Bigot described from Chili, I believe to be a synonym of *T. mexicana* Mcq., so far as I can judge from the descriptions.

37. **Trichopoda histrio** Walk.

Inverness, Fla., and southern Illinois (Robertson). One specimen from each locality in Mr. Robertson's collection (Robt. in litt.). I use this name for *T. trifasciata* Lw., which I have shown to be a synonym of it (Proc. Ent. Soc. Wash., ii, 139).

38. **Trichopoda mexicana** Mcq., Dipt. Ex., Sup. i, 172.

Macquart described the female as there designated. The species differs from all those I know by having the first two antennal joints testaceous.

39. **Xysta** sp.

See "Can. Ent.," 1881, p. 150, for note on *Xysta* sp. from New Hampshire.

40. **Hyalomyia celer** n. sp. ♀.

Eyes cinnamon-brown, closely approximated, almost touching in front of the ocelli; frontal vitta triangular, velvety black, with a row of black hairs on each side; a short bristle at each vertical angle, and a pair within ocelli directed strongly forward; sides of front, sides of face, face, cheeks and occiput silvery, the occiput a little more inclining to plumbeous; epistoma prominent, produced, no decussate vibrissæ, the facial ridges with hairs to tips of antennæ; sides of face bare, cheeks with gray hair; antennæ black, third joint somewhat silvery, wider than second, but little longer, rounded; arista thickened little more than half its length, 3-jointed, first two joints short; proboscis brownish or blackish, longer than height of head, somewhat fleshy, labella well developed; palpi rather long, slender, knobbed at tip, blackish; occiput sparsely black hairy. Thorax and scutellum shining black, faintly silvery in some lights, humeri and pleuræ more distinctly silvery; scutellum with an apical and lateral pair of bristles. Abdomen clothed with short black hairs, shining, black at base; the last three segments cinereous pollinose, black punctate. Legs black, claws and pulvilli somewhat elongate. Wings gray-hyaline, veins pale yellowish brown; tegulæ whitish, halteres rufous. Length 4 mm.; of wing, 3.5 mm.

Described from one specimen. Las Cruces, N. Mex., June 18; on flowers of *Aster spinosus*.

41. **Hyalomyia celer** or n. sp. ♂.

Differs from *H. celer* ♀ only as follows: Silvery, sides of front a little wider, constricting the frontal vitta posteriorly; epistoma not prominent, not produced; arista thickened a little less than half its length; palpi not so much thickened at tip; hypopygium distinct, large, extruded; claws and pulvilli rather elongate. In all other respects like the preceding. Length slightly more than 4 mm.; of wing about 3.5 mm.

Described from one specimen. Las Cruces, N. Mex., June 3; on flowers of *Aster spinosus*. This may be the male of *H. celer*.

42. ***Gymnosoma fuliginosa*** R. D.

I believe this to be distinct from the European *G. rotundata* L., after comparing three males of the latter with a series of the American males. The European male has the face more silvery, and the antennæ almost entirely black. The American male has the face with a brassy tinge, and the antennæ very largely fulvous.

The European specimens were kindly sent me by Mr. v. d. Wulp and Mr. v. Röder.

While on the subject of the genus *Gymnosoma*, it may be well to point out that Macquart (Dipt. Ex. Sup. ii, 81) records the occurrence of *G. rotundata* Mg. (so identified by him) from Tasmania, saying, also, that it exactly resembles the European form. This, therefore, gives *Gymnosoma* a range in the southern Hemisphere, but in the temperate regions. It is not a tropical genus. I doubt Macquart's specific determination, however.

43. ***Cistogaster immaculata*** Mcq., Dipt. Ex. ii, 3, 76.

Gymnosoma occidua Wlk. and *Cistogaster divisa* Lw. are synonyms of this species. Macquart and Loew described the male, and Walker the female.

In connection with this species, there is an interesting point to be decided. Having examined an extensive series of *Cistogaster*, which I believed to belong to this one species, although there was much variation among the females, I found that I could readily separate the individuals of the latter sex into two constant series. As there did not seem to be any constant differences in the males, in fact very little variation if any, it occurred to me that there might be a case of dimorphism among the females of this species, the normal form being that described by Walker, and also by Williston (Trans. Am. Ent. Soc. xiii, 296). This form has the mesoscutum shining black, with three distinct white pollinose vittæ (scutellum pollinose), the abdomen with a median similar vitta and two or three similar cross-bands or fasciæ, and is larger than the male. The other form of the female approaches the male in both size and the color of the abdomen, having the latter more or less red, especially anteriorly on the sides, the rest blackish, but not showing the cross-bands or median vitta more than in the male; the principal difference, however, is in the color of the mesoscutum (including the scutellum), which is

shining black without the white pollinose vittæ of the normal female, or the brassy pubescence of the male, only white pollinose on humeri and pleuræ. The sides of front also are more black, with less silvery. I thought to consider this a case of dimorphism, rather than to consider as distinct the latter form, which approaches the male in general habitus. The capture of pairs *in coitu* will be needed to confirm or refute the supposition.

However, Mr. Charles Robertson, of Illinois, in correspondence with me on the above point, writes that he can differentiate the males, and believes, therefore, that there are two distinct species to be distinguished in both sexes. This may be so, and the fact that individuals of the same sex, in two nearly allied species, are sometimes hardly to be separated favors this view. I quote Mr. Robertson's letter in full so far as it pertains to this subject, and confess that his views seem very probable.

"Put in a row all males having a longitudinal fuscous stripe on the abdomen. In a parallel row put all males in which this fuscous stripe is wanting. Then in line with the first set put the 'normal' females and in line with the second set put the 'dimorphic' females. It will be noticed first that the fuscous stripe also bears a pollinose stripe and indicates a connection with the normal females which have a pollinose stripe down the abdomen. Then it will be noticed that the first set of males runs larger than the second, which goes to show that they are distinct, and that they belong to the 'normal' females which also run larger than the 'dimorphic' females. In the large males it will be seen that the first posterior cell varies from closed to petiolate as in the normal females, while the small males have the cell more petiolate, as in the 'dimorphic' females. Then it will be observed that the bend of the fourth vein is more rounded in the small males, and generally more angulate in the large ones. Comparing the abdomens of the two sets of males with those of the corresponding females will show that they agree in the distribution of pollen, which I think is very important. Probably other points will be found, but if the specimens are arranged as I have suggested, and each specimen in the one row compared with the one standing opposite in the other row, I am satisfied the conclusion will be drawn that there are two distinct species which can be separated easily, though the males are a little harder to separate than the females, a very common thing in closely allied species.

"I have considered that black specimens of the 'dimorphic' females were the same as *C. pallasi* Towns., but the small species is really a redder one than the large."

In case it is shown that there are two species in the above forms, Macquart's name will still stand for the species which possesses the "normal" females, and Walker's name will still remain a synonym because he described the "normal" female. Loew's name, however, can be applied to the species possessing the "dimorphic" females, which will thus be known as *C. divisa*.

44. **Ocyptera euchenor** Walk.

Illinois (Forbes); twenty specimens, measuring 8-10.5 mm. Of *O. dosiades* Walk., there were ten specimens from same locality, measuring 5-7.5 mm., and all normal in size and color. Though it is difficult to separate these two forms, yet it hardly seems probable that they are all the same species. Dr. E. Giglio-Tos doubtfully unites them in his recent work on Mexican Diptera (Ditt. Mess., iii, p. 1). The differences in size are too great, I believe, to admit of this view.

45. **Hemyda aurata** R. D.

I have four specimens from Illinois (Forbes), and one from State of Washington (Williston). Two of the Illinois specimens are males and two females. The Washington specimen is a female. The female is the smaller, has the shorter claws and pulvilli, and the pale yellow markings of the abdomen are not so heavy. The front is about one-third the width of the head in both sexes. R. D. says that, in *H. aurata*, the posterior half of the second segment is pale testaceous. In the above five specimens the second segment is broadly pale yellow on the sides, the yellow being separated by a median black vitta which broadens out and forms the hind margin of the segment. The pale yellow anterior fascia of third segment is very narrow and interrupted in the middle in the females, but is much broader, and with a tendency to become entire anteriorly in the males. I consider the above specimens, however, the same as Desvoidy's species, which is doubtless the only species of this genus in North America or elsewhere.

PSEUDOHYSTRICIA Brauer and v. Berg.

General characters.—Robust species with spiny macrochaetae, having the facies of *Dejeania*, but easily distinguished by the hairy eyes. Belongs to the Hystriciinae. Head quadrilateral in profile; front of male twice as broad before as at vertex, more than one-third width of head in middle, prominent in profile, face nearly twice as wide; frontal bristles strong, descending about as low as base of third antennal joint, vertical bristles and about next four pairs directed backward, rest inward and decussate; no orbital bristles in male. Face a little receding, epistoma very prominent; facial depression more than one-half width of face, oval in outline, shallow; facial ridges bare, except several bristles next vibrissae, constricted below; sides of face wide, clothed with some fine long hair; cheeks very wide, fully three-fourths of eye-height, hairy posteriorly; vibrissae strong, inserted a good distance above oral margin. Eyes quite

thickly hairy. Antennæ shorter than face, second joint elongate, third about one and one-half times as long as second, only moderately wide, convex before, straight behind; arista microscopically pubescent, thickened most of its length, 3-jointed, first two joints very elongate. Proboscis fully as long as height of head, rather slim, elongate, labella developed; palpi long, spoon-shaped, extending more than one-third their length beyond the epistoma. Thorax much wider than head; scutellum and abdomen densely set with spiny macrochaetae. Abdomen much wider than thorax, rounded and swollen. Legs moderately long, tibiae spiny; claws and pulvilli of male very elongate. Wings longer than abdomen, without costal spine, third vein with some weak bristles at base; apical cell widely open, ending well before tip of wing; fourth vein curved suddenly at a right angle, apical cross-vein strongly bowed in at its origin; posterior cross-vein sub-sinuate, very oblique, nearer to bend of fourth vein; both cross-veins nearly parallel with hind border of wing. Type, *Hystiericia ambigua* Macq.

46. **Pseudohystiericia ambigua** Mcq. ♂.

Eyes and frontal vitta brown; sides of front cinereous, with black hairs among frontal bristles, and gray hairs along the vitta; face and cheeks entirely cream-colored, sides of face with long and fine gray hair, cheeks with gray hair posteriorly; antennæ and arista black, the second antennal joint with a stout bristle before; proboscis shining black, brown at base and tip, palpi golden-yellow, brownish toward base; occiput cinereous, thickly clothed with yellowish gray hair. Thorax brassy, clothed with macrochaetae and grayish hair, pleurae golden with a bunch of long yellowish hair, mixed with which are black bristles; scutellum pale flesh-colored, densely set with macrochaetae, the anterior lateral portion only being without them; hypopygium considerably exerted, black, hairy. Legs black, front femora golden on outside, front and middle femora with golden gray hair, femora and tibiae bristly; claws and pulvilli very long, orange-yellow. Wings more or less smoky golden, yellow at base and narrowly along costa; tegulae nearly white, with yellowish borders; halteres golden-brown. Length of body, 14 mm.; of wing, 13 mm.

Described from one specimen; Guanajuato, Mexico (Dr. Alfredo Dugès).

47. **Pseudohystiericia exilis** Towns.

Cichona, Jamaica; several specimens from Mr. W. Fawcett, August and September.

48. **Saundersia bicolor** Will.

San Francisco Mt., Arizona; on large yellow composite in spruce zone, one female specimen, July 15. Recorded from New Mexico, Arizona, California, Washington. I very much suspect that van der Wulp's *S. bipartita* is the same species. It is described from Durango Mexico, 8100 feet, and Cache, Costa Rica. Colorado (Gillette); one specimen.

49. **Saundersia signifera** Will.

Colorado (Gillette); one specimen.

50. **Jurinia algens** Wd.

San Francisco Mt., Arizona; found from base to summit. Most abundant in spruce zone; more in fir zone than at base; sixteen specimens (three coll. by Cordley), July 15; *in coitu* this date. Two from Hart Little Spring, July 14. Of these eighteen specimens, twelve are males and six females; the male may be known by the elongate claws, and the exerted hypopygium. Two other secondary sexual characters are quite constant: the occipital pile of male is more clearly light brassy yellow, that of female deeper or more of a buff-yellow; and the front of the male is more silvery-white pollinose, that of female being more of a golden-yellow pollinose. This species ranges from Colorado and Wyoming through Dakota, Michigan, Canada and New York to New Hampshire and Maine.

Colorado (Gillette); one specimen bred from *Hadena lignicolor*.

51. **Jurinia apicifera** Wlk.

Colorado (Gillette); one specimen bred from *Clisiocampa californica*. This specimen has the face somewhat less golden than specimens from Michigan. Northern specimen of Tachinidæ seem often to have the colors more deeply marked than those from more southern localities.

52. **Jurinia hystrix** Fab. var.?

Colorado (Gillette). A single specimen seems near to *J. hystrix*, and may perhaps be considered a variety of that species.

53. **Jurinia** n. sp. (?) aff. *lateralis* Meq.

Differs from female of *lateralis* as follows: First joint of arista much longer, about as long as second joint, distinct bristly hairs on sides of face below near eye margin; front, thorax and abdomen very similar in all respects, even including the orbital and frontal bristles, but general form not quite so widened, and anal segment without the yellowish silvery efflorescence, wholly shining instead. Abdominal macrochætæ apparently quite the same; third antennal joint dark brown. Length hardly 10 mm.

San Francisco Mt., Arizona; one female near base of mountain, July 14 (Cordley). This is near, but very distinct from *J. lateralis*, with which it might easily be confused from its great similarity.

A male specimen, from Hart Little Spring, near the base of the mountain, July 14, is longer than the preceding, but is sufficiently like it to be in all probability the same species. It agrees with it in all the characters above outlined in contradistinction to *lateralis*, except, of course, in the orbital bristles, but the antennæ are wholly pale reddish including the third joint.

54. **Blepharipeza bicolor** Meq.

Colorado (Gillette); two specimens.

55. **Blepharipeza jurinioides** n. sp.

Length 13 mm.—Stout and unusually spinose, with the facies of *Pseudohystericia* or *Jurinia*, but distinguished by its ciliate hind tibiæ; front black, partly concealed by silvery pollen; frontal vitta spot soft dark brown; facial depression, sides of face and cheeks, silvery pollinose. Antennæ brown, the second joint moderately short, the third joint very long, nearly linear, reaching almost to epistoma; palpi brownish, yellowish apically; posterior orbits and occiput silvery pollinose. Thorax brownish black, thinly silvery pollinose, leaving five narrow vittæ, the three inner ones abbreviated behind, the outer ones interrupted at suture; scutellum and abdomen shining black, densely spinose, spines deep black. Abdomen broad and rounded oval, the surface with a faint metallic bluish shade. Legs dark or blackish brown, femora silvery outside, hind tibiæ black ciliate, pulvilli yellowish. Wings hyaline, blackish at base; tegulæ fuscous.

Cinchona (5000 feet), Jamaica (W. Faucett); one female. Type in coll. Townsend.

56. **Belvosia ferruginosa** n. sp.

Length nearly 12 mm.—Eyes green in life; front brownish red on each side, more or less silvery pollinose; frontal vitta soft brownish golden; facial depression, sides of face and cheeks, rich silvery white pollinose, cheeks hairy. Antennæ dark brown, the third joint linear and nearly three times as long as second; arista brown; palpi brownish black, yellowish on tips; vertex somewhat yellowish; posterior orbits silvery white. Thorax and scutellum brownish red, the former thinly pollinose before, leaving the beginnings of four narrow vittæ; posterior corners of mesoscutum yellowish, also a little yellowish behind humeri. Abdomen of a beautiful iron-rust yellow, in the first and second segments the yellow shade predominating, in the third and fourth the iron-rust shade; first segment brownish under scutellum; a median pair of macrochætæ on first and second, a marginal row on third and fourth segments. Legs soft blackish, pulvilli and claws yellow. Wings uniformly pale fuscous; tegulæ same color.

Bath, Jamaica (E. M. Swainson); bred from a lepidopterous chrysalis; one male. A beautiful species. Type in coll. Townsend.

57. **Echinomyia hæmorrhœa** v. d. Wulp, Williston.

San Francisco Mt., Arizona. Quite well up the mountain, probably in spruce zone. Three males and two females, July 15; also one male near base (Cordley), and another male at Hart Little Spring, both July 14. I am quite satisfied that this is the species referred by Williston to *hæmorrhœa*. In my specimens the third antennal joint is larger in the male, the abdomen (of male) is dark red on the sides and with the anal segment largely blackish shining. The anal segment of female has the silvery efflorescence, but that of the male is quite uniformly without it, only exceptionally showing traces of it. There is a very small cloud on anterior cross-vein in the males, not apparent in the females.

58. **Echinomyia iterans** Walk.

San Francisco Mt., Arizona; in spruce zone; three females (one coll. Cordley), July 15. This species belongs in the subgenus *Pele-*

teria of R. D., by virtue of its having two macrochætæ or bristles on side of face near lower margin of eyes. The subgenus *Echinomyia* s. str. is without these bristles.

59. ***Echinomyia thomsoni*** Willist.

San Francisco Mt., Arizona; in spruce zone. Three females (one coll. Cordley), July 15; also one female, Hart Little Spring, July 14; and one male, Cocanini Plateau to the north of the mountain, July 6.

Colorado (Gillette); one specimen bred from "unknown larva on clover."

60. ***Echinomyia*** n. sp. ?

La Vega de San José, Valencia County, New Mexico; two specimens, male and female, August 4. Flagstaff, Ariz., July 2, a smaller female. This species is very similar to *E. (Peleteria) iterans* Wlk., but may be distinguished not only by the absence of the two bristles on sides of face below near eye margin, which pronounces it an *Echinomyia* s. str., but also by the more cinereous or grayish pollinose prothorax. In *E. iterans*, the prothorax is of a more shining brassy pollinose shade, and the fine thoracic lines are more distinct. In the present species the first two joints of antennæ, and sometimes the base of third, are of a lighter and more dilute reddish than in *E. iterans*. The abdomen is marked the same, except that the anal segment seems to lack, as a rule, the silvery pollinose sheen.

61. ***Atropharista*** Towns.

This genus should undoubtedly be subordinated to *Melanophrys* Willist., and *A. jurinoides* referred to that genus. It does not belong in the Hystriciinæ, but in the Tachininæ.

62. ***Hystrichia aldrichi*** Towns.

This is probably a *Nemoræa*. It comes near *N. obscurella* v. d. Wulp, but differs in having only four thoracic vittæ, and the abdominal segments with both marginal and discal macrochætæ.

63. ***Gonia sagax*** Towns.

Illinois (Forbes); one specimen. It has the antennæ not so bright orange, but of a duller color. Length 9.5 mm.

64. ***Argyrophylax*** sp.

Colorado (Gillette). A specimen, apparently belonging to this genus, was bred from *Philampelus achemon*.

65. ***Siphoplusia anomala*** Towns.

What I take to be a male specimen of this species (southern Illinois, Robertson) has the abdomen slightly narrowed, with the pollen more of silvery than a cinereous shade.

66. **Cnephalia** sp.

Mesilla Valley of the Rio Grande, New Mexico. A characteristic species of this genus is numerous in individuals about Las Cruces.

67. **Trichophora** sp.

Six specimens from southern Illinois (Robertson) I refer to this genus. Mr. v. d. Wulp remarks on the doubtful distinctions between this genus and *Cuphocera* (Biol. Cent.-Amer., Dipt. iii, 35-36). The two genera seem well marked. *Cuphocera* differs by its more elongate abdomen and general narrower form, and should include *C. ruficauda* v. d. W., which has an elongate abdomen. The present species of *Trichophora* has a short, stouter abdomen, and general much stouter form. It differs from *Echinomyia* only in the entire absence of palpi, the third antennal joint being about as long as the second, and the frontal bristles descending in a double row below near the eye margin (the so-called genal bristles). The second and third abdominal segments have only marginal macrochaetae.

The character of the comparative length of the second and third antennal joints does not seem to be rightly understood in the three genera *Trichophora*, *Cuphocera* and *Echinomyia*. The last has the third joint shorter than the second. *Cuphocera*, according to the type species, should have the same characteristic, but specimens which I identify as *C. macrocera* Wd. and *C. ruficauda* v. d. W. have the third joint fully as long as the second, or a little longer. These two species, moreover, agree in their general elongate form, very noticeable in the elongate abdomen, and thus would be readily separated from the shorter, stouter species of *Trichophora*. The species of *Trichophora* above referred to may be distinguished at once from *T. nigra* Meq. by having two bristles on the sides of face near lower margin of eyes, instead of one as in that species; and from *T. analis* Sch. by the anal segment being wholly rufous, and the other segments blackish, the sides of the anal segment in *T. analis* being broadly black and the rufous extending on sides of second and third segments.

68. **Tachina elisiocampæ** Towns.

Colorado (Gillette); one specimen bred from *Danaïs archippus*. The front is less golden than in the type from Maine. Sides of abdomen more distinctly red; scutellum more generally rufous. Another specimen, which I refer here with some doubt, was bred by Prof. Gillette from *Clisiocampa californica*.

69. **Tachina** sp.

Colorado (Gillette). A species with a *Plagia*-like facies. One specimen bred from *Plusia brassicae*.

70. **Tachina** sp. (s. str.)

Colorado (Gillette). One specimen reared from a larva of *Coptocyela*. This is probably a new species of *Tachina* (in the narrow sense).

71. **Miltogramma cinerascens** Towns.

A specimen from southern Florida (Robertson) agrees with the types of this species in all respects, except that the face and cheeks are a little less deeply golden or brassy pollinose, but have somewhat more of a silvery shade. I will not venture to describe it as distinct.

72. **Miltogramma trilineata** v. d. W.

Two male specimens from southern Florida (Robertson), collected February 16 and March 10, I refer to this species. They seem to have the abdomen slightly more silvery than a specimen from southern Illinois, but are otherwise identical.

These two species both differ from Schiner's description of *Miltogramma* by not having the first abdominal segment shortened, and by having the frontal bristles moderately strong. From his description of *Macronychia* they differ in their smaller size, and the abdomen being rather short conical. They agree with *Eumacronychia* in having one row of frontal bristles, and the orbital bristles present in both sexes. The front is about one-fourth width of head (in both sexes?).

73. **Eumacronychia decens** Towns.

Seneca Ranch (north of Springerville), Arizona; one male, June 25. Also one female, Zuni River, Arizona, July 28.

74. **Eumacronychia elita** Towns., Trans. Am. Ent. Soc. xix, p. 100.

This species bears much superficial resemblance to the genus *Gynoprosopa* Towns., more than does *E. decens*. The following differences may be pointed out between it and that genus: Front fully one-third width of head in male, a little more prominent; frontal bristles weaker, more nearly equal; two orbital bristles in male. Facial depression about one-third width of face in male; sides of face rather wide; cheeks wide, nearly one-half eye-height. Eyes descending little over two-thirds as low as oral margin; second antennal joint rather elongate, third joint about twice as long as second; proboscis about as long as height of head, not stout; scutellum with two lateral pairs of macrochaetae, but with apical decussate pair wanting. Abdomen cylindro-conical, first segment not shortened; hypopygium exerted; pulvilli of male elongate, claws short; fourth vein with a quite distinct wrinkle at bend, apical cross-vein only slightly concave, apical cell narrowly open and terminating well before tip of wing.

75. **Masicera** sp.?

Southern Illinois (Robertson); one specimen. This differs from the genus *Masicera* in its elongate, rather narrowed abdomen with the macrochaetae only marginal, in the general elongate form, and in the frontal bristles descending on sides of face nearly as low as the vibrissae. It will probably form a new genus.

76. **Olivieria** n. sp.

Southern Illinois (Robertson); one male I refer to this genus. It agrees with Schiner's description of *Olivieria* in all points except following: Eyes very distinctly hairy, instead of thinly so; proboscis a little longer than height of head, palpi a little thickened terminally; first abdominal segment hardly shortened; apical cell open.

77. **Nemorea** n. sp.

Southern Illinois (Robertson); three males and two females. This species differs from *N. aldrichi* (descr. as a *Hystericia*) in having the anal segment rufous, and sides of other segments frequently so as well. It differs from *N. variegata* v. d. W. in having the third antennal joint hardly longer than the second. From the description of *N. leucanie* Kirkp., it differs only in the same character—the length of the third antennal joint, which in that species is said to be two and a half to three times as long as second. The antennae vary from wholly black to black with the second joint clear rufous.

78. **Nemorea** n. sp.

Colorado (Gillette); one bred from *Epantheria permaculata*.

79. **Mystacella** n. sp.

Colorado (Gillette); one specimen bred from *Acronycta americana* (?); and another from *Pyrrharchia isabella*.

80. **Hyphantrophaga hyphantriæ** Towns.

Colorado (Gillette); one bred from *Vanessa milbertii*.

81. **Hyphantrophaga** n. sp.

Colorado (Gillette); two specimens bred from *Vanessa milbertii*. This is very near to, but different from, *H. hyphantriæ* Towns., and is probably a new species.

82. **Exorista theclarum** Scudd.

E. chrysophani Towns., "Ent. News," 1891 (December), pp. 197–198, is a synonym of this species.

MYOBIA Rob. Desv.

General characters.—Yellowish species, considerably resembling *Chytia*, but readily distinguished by the very large palpi. Belongs in Thryptoceratinae. Head nearly rectangular in profile; front rather prominent, about one-third width of head, frontal bristles

descending almost to base of third antennal joint; vertical bristles strongest, and, with next two pairs, directed backward, others inward; two orbital bristles in the female. Face nearly perpendicular, epistoma prominent; facial ridges bare; sides of face not wide, bare; cheeks about as wide as one-third the eye-height, bare; vibrissæ inserted almost on oral margin. Eyes bare. Antennæ not quite as long as face, second joint a little elongate; arista pubescent, thickened on basal half, indistinctly 3-jointed, second joint not elongate; proboscis rather slender, considerably longer than height of head, labella considerably developed; palpi unusually large, club-shaped, elongate, extending one-third their length beyond the epistoma, much thickened at tip. Thorax about as wide as head; scutellum with a sub-apical pair of macrochætæ, which are not decussate, and a lateral pair, besides several very weak ones. Abdomen a little wider than thorax, broadly rounded, first segment hardly shortened; macrochætæ only marginal. Legs somewhat elongate, not very bristly. Wings longer than abdomen, without costal spine, first vein spined its whole length, third vein spined as far as the small cross-vein; apical cell ending in the apex of the wing, open; fourth vein bent at a curve, without stump or wrinkle; hind cross-vein a little nearer the bend of the fourth vein, apical cross-vein slightly concave. Type, *M. diadema* Wd.

83. **Myobia diadema** Wied. ♂.

Eyes cinnamon-brown; front light yellow, frontal vitta same color; face and cheeks whitish, the sides of face with a golden tinge; cheeks with some bristles on lower border; antennæ orange-yellow, dark brownish at tip, joint with a long bristle before; arista dark brown; proboscis yellowish, palpi orange-yellow, clothed with short black bristles; occiput whitish below, cinereous above, except vertex, which is yellowish, sparsely clothed with gray hairs, fringed with some black bristles above. Thorax dark cinereous with a pair of narrow, black, median vittæ becoming obsolete at the suture, and a longer, lateral vitta interrupted at the suture; humeri and pleuræ yellowish; scutellum yellowish. Abdomen clothed with short, black, bristly hairs: first segment yellowish, second segment yellowish, except median portion and hind borders, last two segments brownish yellow; first segment with a very small median marginal pair of macrochætæ, and some lateral bristles on sides; second segment with a median marginal pair and a lateral pair, third segment with eight or more marginal, and last segment with six or more marginal macrochætæ; venter light yellowish at base, darker at tip, anus blackish. Legs with a few sparse bristles, light yellowish except tarsi, which are blackish; first tarsal joint much elongated; claws and pulvilli short. Wings grayish hyaline, the portions along wing-veins tinged with yellowish; tegulæ light yellowish, especially on borders; halteres light yellowish. Length of body, 7 mm.; of wing, about 6 mm.

Described from one specimen, Ithaca, N. Y. (Comstock), July 19.

84. ***Atrophopoda singularis*** Towns.

On pp. 373–375 of TRANS. AM. ENT. SOC., vol. xviii, I gave a description of the new genus *Atrophopoda*, from two specimens from Illinois. Although both sexes are indicated in the description, I believe that I had females only under inspection. In a collection of Tachinidæ sent me by Prof. Forbes, from Illinois, I find 27 specimens which seem to be this species. Of these, 12 are the typical form of my descriptions, and are apparently the female sex, while 15 are apparently the same species, and if so, must be considered the males. They differ by having the eyes pronouncedly hairy, the antennæ greatly enlarged and hypertrophied, and the claws and pulvilli of all the feet elongate—the same form described by me as *Lachnomma* in TRANS. AM. ENT. SOC., xix, pp. 103–105. I desire to point out the possibility of these two forms being male and female, since the suspicion has come to me. If it is so shown, the name *Atrophopoda* has priority over the other. Some of the *Lachnomma* form are much smaller than the typical. However, the typical specimens of *Lachnomma* do not possess the vittate thorax characteristic of the above specimens.

85. ***Epigrimyia polita*** Towns., TRANS. AM. ENT. SOC., xviii, 375–376.

One specimen from southern Illinois (Robertson) does not differ from the type described from D. C. It was taken by Mr. Robertson on flowers of *Blephilia* sp.

86. ***Pseudomyothyria*** n. sp.

Length 4.5 mm.; of wing, 3.5 mm.—Eyes brown, frontal vitta brown; sides of front, face and cheeks silvery; two orbital bristles, directed strongly forward and a little outward; antennæ and arista black, third antennal joint four times as long as second, rather stout; proboscis brown, palpi pale rufous; occiput cinereous, sparsely hairy. Thorax silvery, with four narrow blackish vittæ anteriorly; scutellum blackish, silvery pollinose. Abdomen shining black, bases of second to fourth segments broadly silvery pollinose, the third segment faintly and the fourth markedly with a golden shade; second and third segments have the pollen divided by a non-pollinose black median band; first and second segments with a median marginal and a lateral marginal pair of macrochaetæ, third with eight marginal, anal armed with marginal and submarginal macrochaetæ. Legs black, pulvilli and claws small. Wings grayish hyaline, tegulæ white; halteres brownish testaceous.

Southern Illinois (Robertson). This species differs somewhat from the type of the genus in not having the facial ridges ciliate more than half way up the face.

87. ***Vanderwulpia atrophopodoides*** Towns.

Socorro, N. Mex., August 8; one specimen.

88. ***Scopolia*** n. sp.

Southern Illinois (Robertson); one specimen. Differs from Schiner's description of *Scopolia* by having a more nearly ovate, instead of a

conical abdomen. The abdomen is rather shorter than elongate. I notice that *Scopolia sequax* Will. is described as having the abdomen ovate also.

89. **Scopolia** sp.

Colorado (Gillette); probably a new species. One specimen bred from a leaf-roller on choke cherry.

DEXIIDÆ.

90. **Scotiptera** n. sp.

Southern Illinois (Robertson). One female I refer to this genus on account of the very short stump at bend of fourth vein, and the rather elongate proboscis. The third antennal joint is, however, not more than twice the length of the second. The front of female is narrower than the eyes at vertex, but in middle about as broad as eyes. The cheeks are somewhat more than half the eye height; the bristles on the legs are rather stout. In other characters it agrees with v. d. Wulp's generic description in the Biol. Cent.-Amer. Dipt.

91. **Chaetona** n. sp. ?

Colorado (Gillette). One specimen bred from *Epantheria permaculata*.

92. **Thelaira** n. sp.

Colorado (Gillette); one bred from *Pyrrharetia isabella*. Probably a new species.

93. **Thelaira** sp. ?

Colorado (Gillette). One specimen, apparently of this genus, bred from *Epantheria permaculata*.

Another specimen of same genus as above, but of a different species, bred from *Pyrrharetia isabella*.

MUSCIDÆ.

94. **Ormia** sp. ?

A male and female specimen from Forbes, Illinois, seems to agree with *Ormia* R. D., except in following points: Apical cross-vein is not bowed out, but is actually bowed in. The face is strongly carinate, which character is not mentioned by R. D. The male specimen is indicated by Forbes as bred from *Crambus* sp.

95. **Compsomyia macellaria** F.

Illinois (Forbes); twelve specimens, four males and eight females, three of them only 5-5.5 mm. Two of these three are females and one is a male; only one out of the twelve has the scutellum and thorax posteriorly metallic-blue, the others having these parts at most deep metallic-green; average length 7.5 mm.; one measures 8.5 mm.

Liguanea Plain (Kingston) and elsewhere in Jamaica. I have identified specimens of the adults sent me by Mr. Cockerell. The larvæ have been known for over a century as attacking man; also troublesome to animals (see Notes from the Museum, No. 63, Inst. of Jamaica, Oct. 26, 1893; and Journ. Inst. Jamaica, i, pp. 372 (Jones and Cockerell) and 378).

ANTHOMYIIDÆ.

96. *Mydæa spermophilæ* n. sp.

Length nearly 8 mm.—Eyes light cinnamon-brown; front rather narrow, widening anteriorly nearly in line with face; frontal vitta light brown, sides of front very narrow and silvery pollinose; whole face and cheeks yellowish silvery pollinose. Antennæ deep yellow with an orange tinge, second joint moderately short, third about three times as long as second; arista brown, feathery, yellowish at base; palpi yellow, with some short black hairs; proboscis fleshy, yellowish, brown at base; posterior orbits and occiput cinereous pollinose. Thorax blackish, silvery pollinose, leaving four black vittæ, the outer ones more interrupted at suture than inner ones; scutellum and abdomen black, thinly silvery pollinose, in a somewhat marmorate pattern on abdomen and a little more thickly towards bases of segments; venter silvery on sides, pale yellow on median basal portion. Legs brownish, femora darker basally and yellowish on lower side distally; coxæ and trochanters yellowish, tarsi dark; pulvilli yellowish. Wings clear hyaline, tegulæ whitish.

Kingston, Jamaica. One specimen bred, November 22, from a young *Spermophila*, probably *S. bicolor* L. Type in coll. Townsend.

Similar larvæ have been noticed at Cinchona (5000 feet), Jamaica, in nestlings. They have also been noticed in nightingale (*Mimus orpheus*) nestlings at Duncans, Jamaica (see Notes from the Museum, No. 70, Institute of Jamaica, Nov. 22, 1893; and Journ. Inst. Jamaica, i, pp. 381–82).

Mr. E. Stuart Panton has written me that he remembers seeing nestlings of *M. orpheus* on several occasions, many years ago in Jamaica (probably in Manchester), with two or three of these larvæ on either side of the base of the beak. The only case of the kind ever recorded, so far as I know, is that of *Hylemyia (Aricia) pici* Meq., the larva of which lives in a swelling on the wing of *Picus striatus* in Santo Domingo. A third case is that of another anthomyiid (different from the Jamaican one) which infests birds in Trinidad, and of which I will treat in a separate paper.

97. *Mydæa* sp.?

Colorado (Gillette). An anthomyiid, probably belonging to this genus, bred from *Pieris rapæ*.

MUSCIDÆ—ACALYPTRATÆ.

98. **Euxesta notata** Wied.

Uray, Colo. An adult of this trypetid was reared, October 30, by Prof. F. M. Webster, from a plant of *Oxytropis lamberti* collected at Uray, September 5.

99. **Lonchæa orchidearum** n. sp.

Length 1.5 mm.—Eyes dark brown, with a greenish tinge, probably greenish in life; front and face blackish, the former with several bristles near vertex. Antennæ black, very short, third joint rounded, arista short and comparatively rather stout. Thorax shining metallic black, with a hardly greenish tinge; scutellum with more of a greenish tinge. Abdomen deep metallic green, rather short and somewhat pointed apically. Legs blackish. Wings much longer than abdomen, clear hyaline, iridescent in oblique lights.

Kingston, Jamaica. One specimen bred, March 19, from a flower stem of an orchid (*Oncidium luridum*) brought from Kingston Gardens, February 22.

The specimen agrees well with Schiner's characterization of *Lonchæa*. The habit also agrees, as the larva of the European *L. nigra* Meig. has been found in the stems of *Verbascum*, *Angelica* and *Carduus*, while other species have a similar habit. The present species belongs to none of the three described by Wiedemann from the neotropical region, viz., *L. glaberrima* (W. L.), *chalybea* (Brazil), and *nigra* (Brazil), and, while in this connection, the name *nigra* Wied. (1830) is preoccupied by the European *L. nigra* Meigen (1826). Wiedemann's species may, therefore, be known as *L. wiedemanni*. Type in coll. Townsend.

100. **Drosophila** sp.

Vera Cruz, Mexico (Cockerell); bred in box of *Pulvinaria* and *Orthezia* from Vera Cruz, Mex. Probably issued from *Pulvinaria lutea* Ckll., a beautiful yellow coccid. Length about 2.5 mm. Eyes bright scarlet in life. Body of a general pale yellowish color. This is quite possibly *D. mexicana* Mcq.

101. **Leucopis bella** H. Lw.

I identify a specimen from Colorado, bred by Prof. Gillette from plant-lice, as this species. It agrees very well with Loew's description, except that the second abdominal segment has two black spots and no small dot between them, or scarcely a faint trace of one. The antennæ are but little silvery. It must, however, be considered the same species. I should judge that Dr. Williston's *L. bellula* ("Insect Life," i, 258) is a very distinct species. *L. bella*, as described by Loew, has a median basal dot and two larger dots on the second abdominal segment, and a median dot on the third and fourth segments, while *L. bellula* has a pair of dots divided by a median line on each segment except the first.

ERRATA.

Page 35, lines 7 and 11; 49, line 8 from bottom; 43, line 18; and 44, line 24, read
Proc. Cal. Acad. Sci. 1895.

Page 35, line 8, read *Microdon xanthopilis*.

“ 43, line 17; and 44, line 23, read El Taste.

“ 44, line 22, read *Volucella lucasana*.

“ 45, line 8 from bottom, read *Volucella tolteca*.

“ 48, line 11, read *Eristalis brousi*.

“ 50, line 14 from bottom, read F. W. Ulrich.